

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A composition for enhancing the arc-tracking and arc-erosion resistance properties of an article consisting essentially of:

an effective amount of a mixture A, B or C formed from:

in regard to mixture A, constituents A1 + A3 where constituent A1 is platinum in the form of a platinum complex or compound and constituent A3 consists of a combination of FeO and Fe₂O₃;

in regard to mixture B, mixture B consisting of at least one of: constituents B1 + B2 where constituent B1 has the meaning of constituent A1 and constituent B2 comprises cerium (IV) oxide and/or hydroxide; and

constituents B1 + B3 where constituent B1 has the meaning of constituent A1 and constituent B3 has the meaning of a combination of cerium (IV) oxide and/or hydroxide and titanium oxide TiO₂; or

in regard to mixture C, constituents C1 + C2 where constituent C1 has the meaning of constituent A1 and constituent C2 consists of a combination of constituent B3 and constituent A3;

in constituent A3, the ratio of the amount by weight of FeO to that of Fe₂O₃ lies within the range going from 0.1:1 to 9:1;

in constituent B3, the ratio of the amount by weight of cerium (IV) oxide and/or hydroxide to that of TiO_2 lies within the range going from 0.6:1 to 6:1;

in constituent C2, the ratio of the amount by weight of constituent A3 to that of constituent B3 lies within the range going from 0.02:1 to 1:1;

in a polyorganosiloxane composition D comprising an alkenylsilyl group-carrying constituent and a hydrosilyl group-carrying constituent, either crosslinkable at room temperature or with the heat from polyaddition reactions in the presence of a platinum catalyst by reactions between the alkenylsilyl and hydrosilyl groups; and

the amounts of the various constituents A1, A3, B1, B2, B3, C1 and C2 lie within the ranges mentioned below;

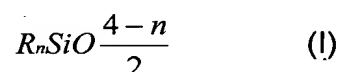
the amount of platinum, expressed in parts by weight of elemental platinum, lies within the range going from 1 to 250 ppm with respect to the total weight of the polyorganosiloxane constituent(s) of the curable compositions D; and

the amounts of constituents A3, B2, B3 and C2 of mixtures A, B and C, expressed in parts by weight of the constituent, lie within the range going from 0.5 to 30 parts by weight per 100 parts of the polyorganosiloxane constituent(s) of the curable compositions D.

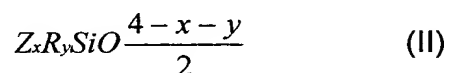
2. (Previously Presented) The method according to Claim 11, wherein the curable polyorganosiloxane compositions D, presented as one or more

packages, contain a main constituent formed from one or more polyorganosiloxane constituents, and a suitable catalyst.

3. (Previously Presented) The method according to Claim 2, wherein the polyorganosiloxane consist of siloxyl units of general formula:



and/or siloxyl units of formula:



in which formulae the various symbols have the following meaning:

- the symbols R, which are identical or different, each represent a non-hydrolysable hydrocarbon-type group defined as:
 - * alkyl and haloalkyl radicals having from 1 to 5 carbon atoms and containing from 1 to 6 chlorine and/or fluorine atoms;
 - * cycloalkyl and halocycloalkyl radicals having from 3 to 8 carbon atoms and containing from 1 to 4 chlorine and/or fluorine atoms;
 - * aryl, alkylaryl and haloaryl radicals having from 6 to 8 carbon atoms and containing from 1 to 4 chlorine and/or fluorine atoms; or
 - * cyanoalkyl radicals having from 3 to 4 carbon atoms;

- the symbols Z each represent a hydrogen atom or a C2-C6 alkenyl group;
- n = an integer equal to 0, 1, 2 or 3;
- x = an integer equal to 0, 1, 2 or 3;
- y = an integer equal to 0, 1 or 2;
- the sum $x + y$ lies within the range going from 1 to 3.

4. (Previously Presented) The method according to Claim 2, wherein the polyorganosiloxane compositions D are those one-component or two-component compositions crosslinkable at room temperature or with heat from polyaddition reactions, called RTV compositions, which comprise:

(a) 100 parts by weight of at least one polydiorganosiloxane comprising linear homopolymers or copolymers having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and having a viscosity ranging from 400 to 100,000 mPa.s at 25°C;

(b) at least one polyorganohydrosiloxane chosen from linear or cyclic homopolymers and copolymers having at least 2 hydrogen atoms per molecule, these hydrogen atoms being linked to different silicon atoms and the organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these radicals being methyl radicals, and having

a viscosity ranging from 5 to 1000 mPa.s at 25°C, reactant (b) being used in an amount such that the molar ratio of the hydride functional groups of (b) to the vinyl groups of (a) is between 1.1 and 4;

(c) a catalytically effective amount of a platinum catalyst;

(d) 0 to 120 part(s) by weight of siliceous filler(s) per 100 parts by weight of the combination of polyorganosiloxanes (a) + (b).

5. (Previously Presented) The method according to Claim 4, wherein up to 100% by weight of reactant (a) is replaced with a polyorganosiloxane resin containing from 0.1 to 20% by weight of one or more vinyl groups in its structure, said structure having at least two different units chosen from M (triorganosiloxy), D (diorganosiloxy), T (monoorganosiloxy) and Q ($\text{SiO}_{4/2}$) units, at least one of these units being a T or Q unit.

6. (Previously Presented) The method according to Claim 2, wherein the polyorganosiloxane compositions D comprise one-component or two-component compositions crosslinkable with heat from polyaddition reactions, and comprising at least one vinyl-containing polydiorganosiloxane reactant (a), the viscosity of the vinyl-containing polydiorganosiloxane reactant (a) lies within the range going from a value greater than 100,000 mPa.s to 500,000 mPa.s.

7. (Previously Presented) The method according to Claim 2, wherein the polyorganosiloxane compositions D are those one-component or two-component compositions crosslinkable with heat from polyaddition reactions, called polyaddition EVC compositions, which comprise:

(a') 100 parts by weight of polydiorganosiloxane gum which is a linear homopolymer or copolymer having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and the said gum having a viscosity of greater than 500,000 mPa.s at 25°C;

(b') at least one polyorganohydrosiloxane chosen from linear, cyclic or network homopolymers and copolymers having at least 3 hydrogen atoms per molecule, these hydrogen atoms being linked to different silicon atoms, and the organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these radicals being methyl radicals, and having a viscosity ranging from 5 to 1000 mPa.s at 25°C, reactant (b') being used in an amount such that the molar ratio of the hydride functional groups of (b') to the vinyl groups of (a') is between 0.4 and 10;

(c') a catalytically effective amount of a platinum catalyst;

(d') 0.5 to 120 parts by weight of siliceous filler(s) per 100 parts by weight of the combination of polyorganosiloxanes (a') + (b').

8. (Previously Presented) The method according to Claim 2 wherein the polyorganosiloxane compositions D are those one-component compositions, called EVC compositions, comprising:

(a") 100 parts by weight of a polydiorganosiloxane gum which is a linear homopolymer or copolymer having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and the said gum having a viscosity of at least 1,000,000 mPa.s at 25°C;

(b") 0.1 to 7 parts by weight of an organic peroxide; (c") 0.5 to 120 parts by weight of siliceous filler(s) per 100 parts by weight of gum (a").

9. (Previously Presented) Articles made of silicone elastomer having good arc-tracking and arc-erosion resistance properties, and good flame-resistance properties and good mechanical properties, which are obtained by crosslinking:

- polyorganosiloxane compositions D as defined in claim 1.

10. (Previously Presented) Articles according to Claim 9, which comprise electrical insulation materials, medium-voltage and high-voltage insulators, cable

termination accessories, cable joints, anode caps for television tubes and moulded objects or extruded articles for the aeronautics industry.

11. (Previously Presented) A method for enhancing the arc-tracking and arc-erosion resistance properties of an article, comprising incorporating an effective amount of the composition of Claim 1 into said article.

12. (Previously Presented) The composition of Claim 1, wherein the platinum of constituent A1, B1, or C1 comprises catalytic platinum contained in the polyorganosiloxane composition.

13. (Previously Presented) The method of Claim 5, wherein the vinyl groups are carried by the M, D, and/or T units.

14. (Previously Presented) The method of Claim 2, wherein the polyorganosiloxane composition D further comprises one or more compounds comprising: reinforcing, semi-reinforcing, or bulking fillers; fillers serving to modify the rheology of the curable compositions; crosslinking agents; adhesion promoters; plasticizers; catalysts; inhibitors; or colorants.

15. (Previously Presented) The composition of Claim 1, wherein the polyorganosiloxane composition D is in the form of a silicone elastomer comprising crosslinked alkenylsilyl group-carrying and hydroalkenyl group-carrying constituents.

16. (Previously Presented) A composition for enhancing the arc-tracking and arc-erosion resistance properties of an article consisting essentially of:

an effective amount of a mixture A, B or C formed from:

in regard to mixture A, constituents A1 + A3 where constituent A1 is platinum in the form of a platinum complex or compound and constituent A3 consists of a combination of FeO and Fe₂O₃;

in regard to mixture B, mixture B consisting of at least one of: constituents B1 + B2 where constituent B1 has the meaning of constituent A1 and constituent B2 comprises cerium (IV) oxide and/or hydroxide; and

constituents B1 + B3 where constituent B1 has the meaning of constituent A1 and constituent B3 has the meaning of a combination of cerium (IV) oxide and/or hydroxide and titanium oxide TiO₂; or

in regard to mixture C, constituents C1 + C2 where constituent C1 has the meaning of constituent A1 and constituent C2 consists of a combination of constituent B3 and constituent A3;

in constituent A3, the ratio of the amount by weight of FeO to that of Fe₂O₃ lies within the range going from 0.1:1 to 9:1;

in constituent B3, the ratio of the amount by weight of cerium (IV) oxide and/or hydroxide to that of TiO_2 lies within the range going from 0.6:1 to 6:1;

in constituent C2, the ratio of the amount by weight of constituent A3 to that of constituent B3 lies within the range going from 0.02:1 to 1:1;

in a polyorganosiloxane composition D comprising a one-component or two component composition crosslinkable at room temperature or with heat from polyaddition reactions, the composition (D) comprises:

(a) 100 parts by weight of at least one polydiorganosiloxane comprising linear homopolymers or copolymers having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and having a viscosity ranging from 400 to 100,000 mPa.s at 25°C;

(b) at least one polyorganohydrosiloxane chosen from linear or cyclic homopolymers and copolymers having at least 2 hydrogen atoms per molecule, these hydrogen atoms being linked to different silicon atoms and the organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these radicals being methyl radicals, and having a viscosity ranging from 5 to 1000 mPa.s at 25°C, reactant (b) being used in an amount such that the molar ratio of the hydride functional groups of (b) to the vinyl groups of (a) is between 1.1 and 4;

(c) a catalytically effective amount of a platinum catalyst;

(d) 0 to 120 part(s) by weight of siliceous filler(s) per 100 parts by weight of the combination of polyorganosiloxanes (a) + (b); and

the amounts of the various constituents A1, A3, B1, B2, B3, C1 and C2 lie within the ranges mentioned below;

the amount of platinum, expressed in parts by weight of elemental platinum, lies within the range going from 1 to 250 ppm with respect to the total weight of the polyorganosiloxane constituent(s) of the curable compositions D; and

the amounts of constituents A3, B2, B3 and C2 of mixtures A, B and C, expressed in parts by weight of the constituent, lie within the range going from 0.5 to 30 parts by weight per 100 parts of the polyorganosiloxane constituent(s) of the curable compositions D.

17. (Previously Presented) A method of enhancing the arc-tracking and arc-erosion resistance properties of an article, comprising incorporating an effective amount of the composition of Claim 16 into said article.

18. (Previously Presented) A composition for enhancing the arc-tracking and arc-erosion resistance properties of an article consisting essentially of:

an effective amount of a mixture A, B or C formed from:

in regard to mixture A, constituents A1 + A3 where constituent A1 is platinum in the form of a platinum complex or compound and constituent A3 consists of a combination of FeO and Fe₂O₃;

in regard to mixture B, mixture B consisting of at least one of: constituents B1 + B2 where constituent B1 has the meaning of constituent A1 and constituent B2 comprises cerium (IV) oxide and/or hydroxide; and

constituents B1 + B3 where constituent B1 has the meaning of constituent A1 and constituent B3 has the meaning of a combination of cerium (IV) oxide and/or hydroxide and titanium oxide TiO₂; or

in regard to mixture C, constituents C1 + C2 where constituent C1 has the meaning of constituent A1 and constituent C2 consists of a combination of constituent B3 and constituent A3;

in constituent A3, the ratio of the amount by weight of FeO to that of Fe₂O₃ lies within the range going from 0.1:1 to 9:1;

in constituent B3, the ratio of the amount by weight of cerium (IV) oxide and/or hydroxide to that of TiO₂ lies within the range going from 0.6:1 to 6:1;

in constituent C2, the ratio of the amount by weight of constituent A3 to that of constituent B3 lies within the range going from 0.02:1 to 1:1;

in a polyorganosiloxane composition D comprising a one-component or two component composition crosslinkable with heat from polyaddition reactions, the composition (D) comprises:

(a) 100 parts by weight of at least one polydiorganosiloxane comprising linear homopolymers or copolymers having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and having a viscosity ranging from 100,000 to 500,000 mPa.s at 25°C;

(b) at least one polyorganohydrosiloxane chosen from linear or cyclic homopolymers and copolymers having at least 2 hydrogen atoms per molecule, these hydrogen atoms being linked to different silicon atoms and the organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these radicals being methyl radicals, and having a viscosity ranging from 5 to 1000 mPa.s at 25°C, reactant (b) being used in an amount such that the molar ratio of the hydride functional groups of (b) to the vinyl groups of (a) is between 1.1 and 4;

(c) a catalytically effective amount of a platinum catalyst;

(d) 0 to 120 part(s) by weight of siliceous filler(s) per 100 parts by weight of the combination of polyorganosiloxanes (a) + (b); and

the amounts of the various constituents A1, A3, B1, B2, B3, C1 and C2 lie within the ranges mentioned below;

the amount of platinum, expressed in parts by weight of elemental platinum, lies within the range going from 1 to 250 ppm with respect to the total weight of the polyorganosiloxane constituent(s) of the curable compositions D; and

the amounts of constituents A3, B2, B3 and C2 of mixtures A, B and C, expressed in parts by weight of the constituent, lie within the range going from 0.5 to 30 parts by weight per 100 parts of the polyorganosiloxane constituent(s) of the curable compositions D.

19. (Previously Presented) A method of enhancing the arc-tracking and arc-erosion resistance properties of an article, comprising incorporating an effective amount of the composition of Claim 18 into said article.

20. (Previously Presented) A composition for enhancing the arc-tracking and arc-erosion resistance properties of an article consisting essentially of:

an effective amount of a mixture A, B or C formed from:

in regard to mixture A, constituents A1 + A3 where constituent A1 is platinum in the form of a platinum complex or compound and constituent A3 consists of a combination of FeO and Fe₂O₃;

in regard to mixture B, mixture B consisting of at least one of: constituents B1 + B2 where constituent B1 has the meaning of constituent A1 and constituent B2 comprises cerium (IV) oxide and/or hydroxide; and

constituents B1 + B3 where constituent B1 has the meaning of constituent A1 and constituent B3 has the meaning of a combination of cerium (IV) oxide and/or hydroxide and titanium oxide TiO_2 ; or

in regard to mixture C, constituents C1 + C2 where constituent C1 has the meaning of constituent A1 and constituent C2 consists of a combination of constituent B3 and constituent A3;

in constituent A3, the ratio of the amount by weight of FeO to that of Fe_2O_3 lies within the range going from 0.1:1 to 9:1;

in constituent B3, the ratio of the amount by weight of cerium (IV) oxide and/or hydroxide to that of TiO_2 lies within the range going from 0.6:1 to 6:1;

in constituent C2, the ratio of the amount by weight of constituent A3 to that of constituent B3 lies within the range going from 0.02:1 to 1:1;

in a polyorganosiloxane composition D comprising a one-component or two component composition crosslinkable with heat from polyaddition reactions, the composition (D) comprises:

(a') 100 parts by weight of polydiorganosiloxane gum which is a linear homopolymer or copolymer having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and the said gum having a viscosity of greater than 500,000 mPa.s at 25°C;

(b') at least one polyorganohydrosiloxane chosen from linear, cyclic or network homopolymers and copolymers having at least 3 hydrogen atoms per molecule, these hydrogen atoms being linked to different silicon atoms, and the organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these radicals being methyl radicals, and having a viscosity ranging from 5 to 1000 mPa.s at 25°C, reactant (b') being used in an amount such that the molar ratio of the hydride functional groups of (b') to the vinyl groups of (a') is between 0.4 and 10;

(c') a catalytically effective amount of a platinum catalyst;

(d') 0.5 to 120 parts by weight of siliceous filler(s) per 100 parts by weight of the combination of polyorganosiloxanes (a') + (b'); and

the amounts of the various constituents A1, A3, B1, B2, B3, C1 and C2 lie within the ranges mentioned below;

the amount of platinum, expressed in parts by weight of elemental platinum, lies within the range going from 1 to 250 ppm with respect to the total weight of the polyorganosiloxane constituent(s) of the curable compositions D; and

the amounts of constituents A3, B2, B3 and C2 of mixtures A, B and C, expressed in parts by weight of the constituent, lie within the range going from 0.5 to 30 parts by weight per 100 parts of the polyorganosiloxane constituent(s) of the curable compositions D.

21. (Previously Presented) A method of enhancing the arc-tracking and arc-erosion resistance properties of an article, comprising incorporating an effective amount of the composition of Claim 20 into said article.

22. (New) The composition according to claim 1, which contains an effective amount of the mixture A.

23. (New) The composition according to claim 16, which contains an effective amount of the mixture A.

24. (New) The composition according to claim 18, which contains an effective amount of the mixture A.

25. (New) The composition according to claim 20, which contains an effective amount of the mixture A.

26. (New) The composition according to claim 1, which contains an effective amount of the mixture B or the mixture C.

27. (New) The composition according to claim 1, which is characterized as having an extinction of time of no more than 8 s, as determined by UL 94V.

28. (New) A composition for enhancing the arc-tracking and arc-erosion resistance properties of an article, comprising:

- a) a suspension containing (i) a polydimethylsiloxane oil terminated at each end of the chains by a $(\text{CH}_3)_2\text{ViSiO}_{0.5}$ unit, where Vi is a vinyl group, and (ii) pyrogenic silica;
- b) a polydimethylsiloxane oil terminated at each end of the chains by a $(\text{CH}_3)_2\text{HSiO}_{0.5}$ unit;
- c) a poly(dimethyl)(hydromethyl)siloxane oil terminated at each end of the chains by a $(\text{CH}_3)_2\text{HSiO}_{0.5}$ unit;
- d) a platinum complex;
- e) a cyclic methylvinylpolysiloxane tetramer; and
- f) FeO and Fe_2O_3 ;

wherein the composition contains an effective amount of d) and f).

29. (New) The composition according to claim 28, consisting essentially of a)-f).

30. (New) The composition according to claim 28, wherein:

a), b), c), d) and e) form a composition A;

composition A contains 93.3 parts by weight of a); 4.7 parts by weight of b), 2 parts by weight of c), 0.011 parts by weight of a solution containing d), and 0.04 parts by weight of e); and

the composition contains 100 parts by weight of the composition A and 10 parts by weight of f).

31. (New) The composition according to claim 28, further comprising quartz.

32. (New) The composition according to claim 31, consisting essentially of a)-f) and quartz.

33. (New) A composition for enhancing the arc-tracking and arc-erosion resistance properties of an article, comprising:

a) a resin containing $(\text{CH}_3)_3\text{SiO}_{0.5}$ units; $(\text{CH}_3)_2\text{ViSiO}_{0.5}$ units, where Vi is a vinyl group; $(\text{CH}_3)_2\text{SiO}$ units; $(\text{CH}_3)\text{ViSiO}$ units and SiO_2 units;

b) silica;

c) a poly(dimethyl)(hydromethyl)siloxane oil terminated at each end of the chains by a $(\text{CH}_3)_2\text{HSiO}_{0.5}$ unit;

d) a platinum complex;

e) 1-ethynyl-1-cyclohexanol; and

f) FeO and Fe_2O_3 ;

wherein the composition contains an effective amount of d) and f).

34. (New) The composition according to claim 33, wherein:

a), b), c), d) and e) form a composition A;

composition A contains 65 parts by weight of a); 33 parts by weight of b), 2.9 parts by weight of c), 0.0063 parts by weight of d), and 0.03 parts by weight of e);
and

the composition contains 100 parts by weight of the composition A and 5 parts by weight of f).

35. (New) The composition according to claim 33, consisting essentially of a)-f).